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USE OF DDT TO CONTROL THE LITTLE FIRE ANT

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The little fire ant (Wasmannia auropunctata (Roger)) is a serious pest to citrus-grove workers in some sections along the east coast of Florida. The ants nest in the soil or under debris, such as fallen branches and fallen leaves, and visit the citrus trees to obtain honeydew secreted by whiteflies, mealybugs, aphids, and other insects found on citrus. In some groves great numbers of these ants are present, and it is impossible for workers to pick fruit, prune, or spray without becoming covered with them and being stung many times. A single sting causes considerable irritation to most individuals. The characteristic symptoms are a welt surrounded by a red, splotchy area, and a severe burning and itching sensation which may prevail for 30 minutes or more. Even after most of these symptoms disappear, the itching may recur at intervals for several days. Workers in citrus groves, especially fruit-picking crews, have refused at times to work in trees infested with this ant. In other instances pickers have left the trees partially picked, or have demanded a premium wage.

Results of experimental work conducted during the last few years on the control of this pest, in which poisoned baits and other insecticidal treatments were tested, have not been satisfactory. Sprays containing oil, pyrethrum, derris, or dinitro-o-cyclohexylphenyl will destroy many ants, but heavy reinfestation occurs in a week or two following treatment. DDT has been found to be much more toxic, and to provide more permanent control than any other material tested. Although many factors affecting the use of DDT for control of this ant remain to be studied, early results of tests with it have been so outstanding as to justify the issuance of preliminary information concerning its use for this purpose.

While complete information as to the length of the protective period of different DDT formulations is not available at this time, a given quantity of technical DDT in fuel oil applied as an emulsion appears to be more effective than when applied in any other way. The preferred formulation consists of the following:

Technical DDT	¼ to 1 pound
No. 2 fuel oil	1 gallon
Glyceryl oleate	1.3 fluid ounces (38 ml.)
Water to make	100 gallons

This formulation is prepared for use by dissolving the DDT in the fuel oil and then emulsifying the solution with the glyceryl oleate. Undoubtedly other emulsifiers of a similar nature would be equally satisfactory. Applied to the entire inside of the tree, sprays containing 1/2 and 1 pound of DDT per 100 gallons have controlled this ant and prevented reinfestation for a period of a year, while 1/4 pound per 100 gallons of spray has done so for 9 months.

Other DDT formulations applied as sprays and dusts have given control and prevented reinfestation for at least 2 months. Such formulations include:

(1) 1/4 pound of technical DDT dissolved in 1 1/2 gallons of emulsive spray oil and diluted with water to make 100 gallons of spray.

(2) 40 ounces of a mixture containing 10 percent of technical DDT in pyrophyllite (1/4 pound of DDT) mixed with water to make a paste and then added to water to make 100 gallons of spray.

(3) 20 or 10 ounces of a water-dispersible powder containing 40 percent of technical DDT (1/2 and 1/4 pound of DDT) mixed with water to make a paste and then added to water to make 100 gallons of spray.

(4) Same as (3) with addition of 1 1/2 gallons of an emulsive spray oil.

(5) A 3-percent commercial DDT dust containing 1 percent of petroleum oil.

(6) A 10-percent commercial DDT dust.

Two methods of applying the spray have proved satisfactory. One method involves spraying the entire inside of each tree, paying particular attention to covering the trunk, and the other involves thoroughly spraying only the trunk and heavy lower limbs. The first method requires about 12 gallons of dilute spray to do a thorough job on a 20-year-old grapefruit tree, whereas the second method requires only about 2 gallons. An effective formulation may prevent reinfestation for as long as 12 months when applied by the first method, and for only 1 or 2 months when applied by the second method, Advantages

of the second method are the saving in material and less danger of adverse effects on beneficial insects, because very little of the spray is deposited on the upper portion of the tree.

Dusts should be applied with a power outfit to two opposite sides of the trees, at the rate of about 1 pound of dust to a 20-year-old grapefruit tree. As with the sprays, particular attention should be given to covering the trunk and larger lower limbs.

No injury to grapefruit trees that have been sprayed or dusted with the formulations listed has been observed.

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